CLAIMS

1. A fuel cell vehicle (200) having a vehicle body and a polymer electrolyte fuel cell (10) mounted in said vehicle body, said fuel cell (10) including a stack (12) formed by stacking a plurality of unit power generation cells (18), a stack container case (14) containing said stack (12), and a condenser (16) provided in said stack container case (14), wherein

in said polymer electrolyte fuel cell (10), each of said unit power generation cells (18) includes an electrolyte electrode assembly (28) and a first separator (34) and a second separator (36) sandwiching said electrolyte electrode assembly (28), said electrolyte electrode assembly (28) including an anode electrode (22), a cathode electrode (24), and a solid polymer electrolyte (26) interposed between said anode electrode (22) and said cathode electrode (24);

said stack (12) is immersed in an electrically insulating liquid coolant (108) inside said stack container case (14) to cool said stack (12);

said stack container case (14) is provided under a passenger compartment of said vehicle body (202); and

an air supplied from an air inlet (206) of said vehicle body (202) contacts said condenser (16) to condense the liquid coolant (108) vaporized at said stack container case (14) when cooling said stack (12).

2. A fuel cell vehicle (200) according to claim 1, wherein coating is applied to at least one of a surface of said condenser (16) and an inner surface of said stack container case (14).

3. A fuel cell vehicle (200) according to claim 2, wherein the coating comprises fluorine resin.

4. A fuel cell vehicle (200) according to claim 3, wherein the coating comprises polytetrafluoroethylene.

5. A fuel cell vehicle (200) according to any one of claims 1 to 4, wherein said stack (12) includes a cooling plate (20) having at least one groove (42, 44) for supplying the liquid coolant (108) into said stack (12).

6. A fuel cell vehicle (200) according to any one of claims 1 to 5, wherein a plurality of protrusions (88) protruding toward said stack (12) are provided on an inner surface of said stack container case (14), and said protrusions (88) are exposed from the liquid surface of the liquid coolant (108).

7. A fuel cell vehicle (200) according to any one of claims 1 to 6, further comprising a trapping section (118) for trapping the condensed liquid coolant (108) at said condenser (16), and a circulation mechanism for allowing the

liquid coolant (108) to flow from said trapping section (118) back to said stack container case (14).

8. A fuel cell vehicle (200) according to any one of claims 1 to 7, wherein the liquid coolant (108) is a liquid which can be boiled into vapor in the nucleate boiling state.

9. A fuel cell vehicle (200) according to claim 8, wherein the boiling temperature of the liquid coolant (108) is lower than an operating temperature of said stack (12) by 10°C to 25°C.

10. A fuel cell vehicle (200) according to claim 9, wherein the liquid coolant (108) is a lower alcohol or a solvent of fluorine compound.

11. A fuel cell vehicle (200) according to any one of claims 1 to 10, further comprising an air discharge assistance mechanism for assistance to discharge the air supplied from said air inlet to the outside of said vehicle body (202).